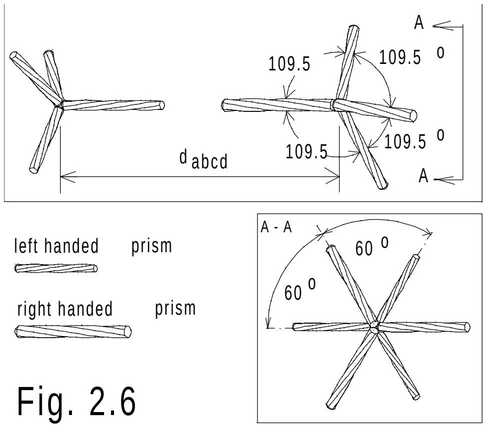
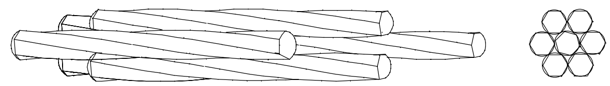
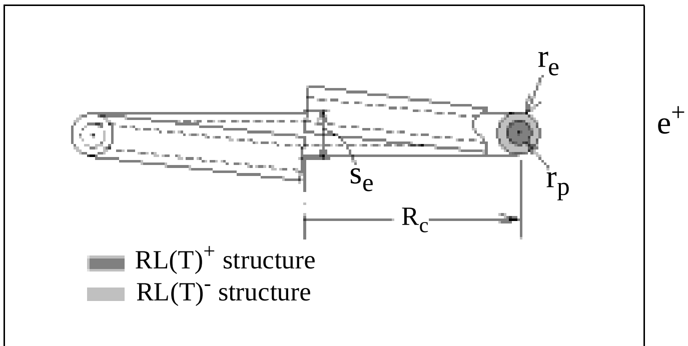


Fig. 2.6

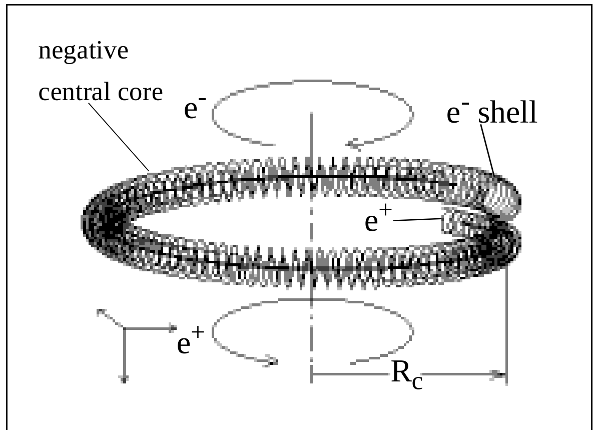


Core node from prisms of same type
(building element of the helical structure)
Note: The twisted prisms model is used

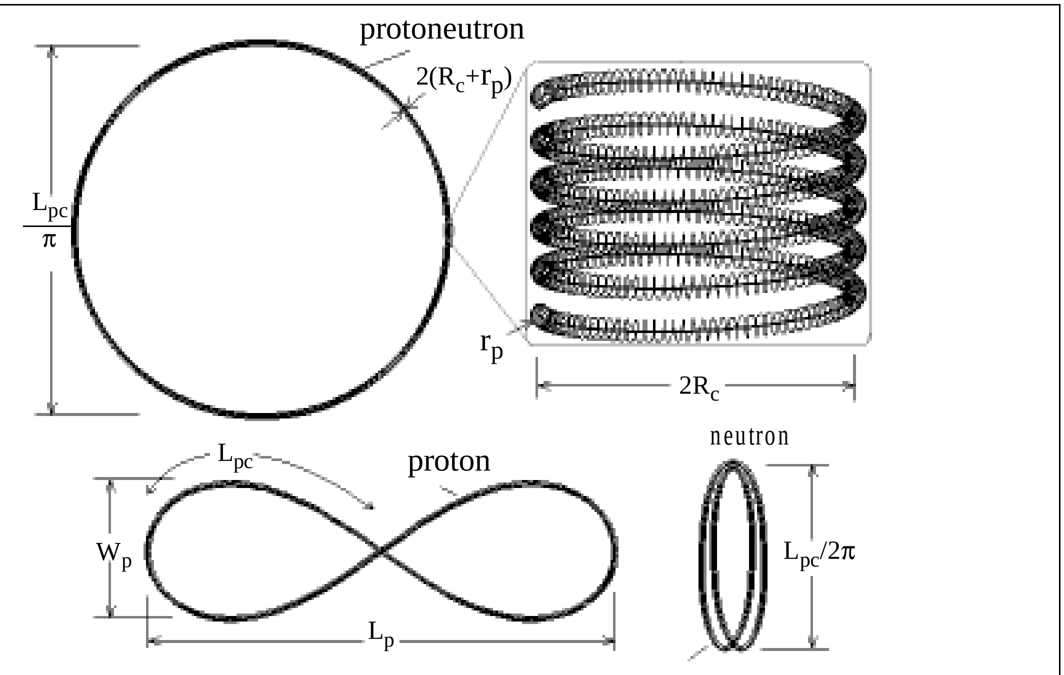
Fig. 2.8.B



Electron structure geometrical parameters



Oscillating electron



Shape and envelope structure of proton and neutron

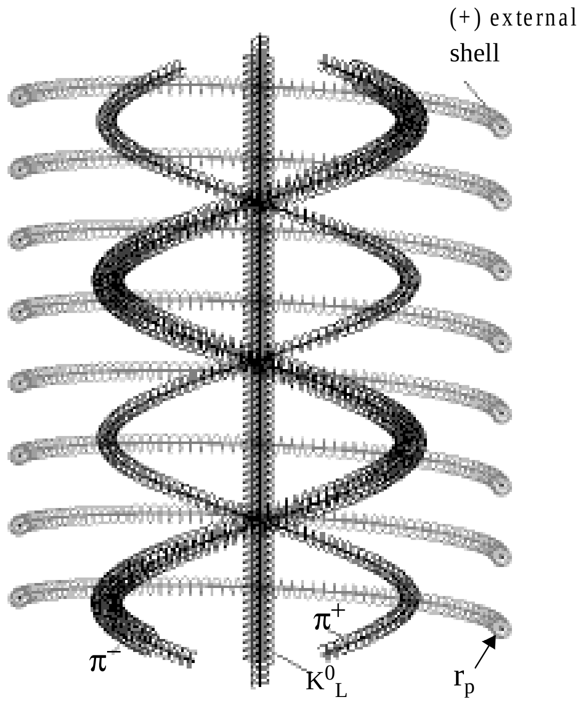


Fig. 2.15.B. Axial sectional view of proton (neutron) showing the external positive shell (envelope) and the internal subatomic particles. All of them are formed by helical structures with internal RL structures (not shown).

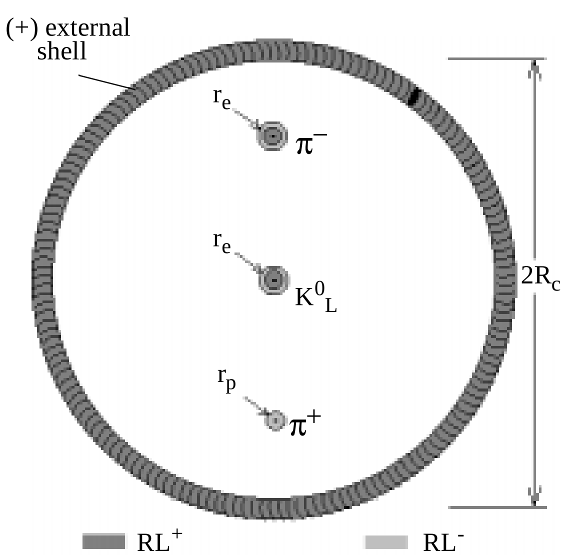


Fig. 2.15.A. Radial sectional view of proton (neutron) core with internal subatomic particles and their internal RL structures. The RL structures are not twisted for the kaon, partly twisted for the pions and fully twisted for the external shell.

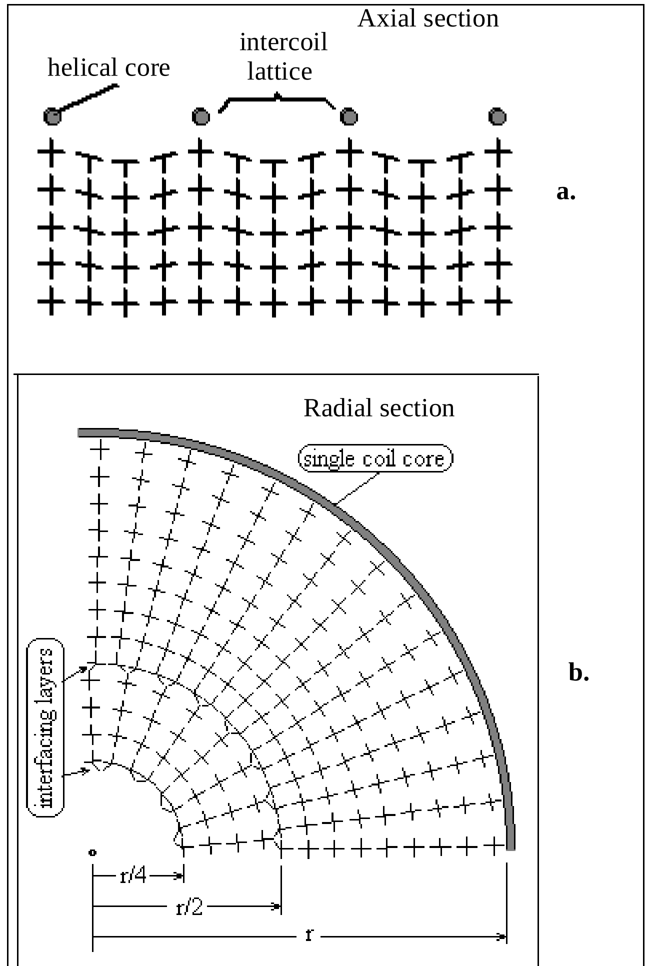


Fig. 2.16 Axial and radial section of FOHS showing the internal RL structure (not twisted)

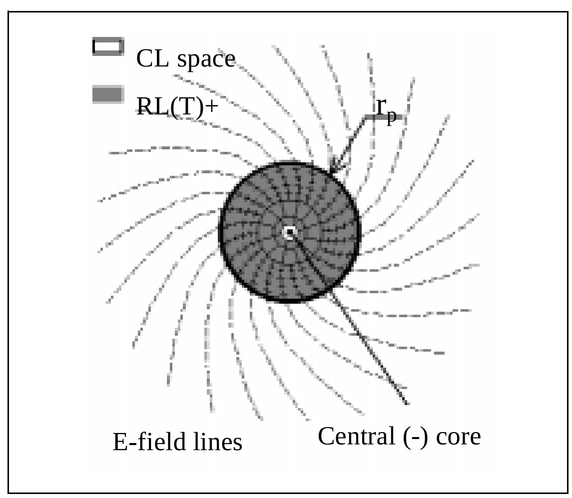
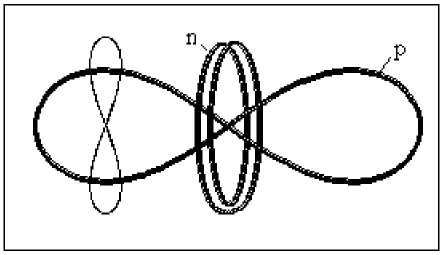
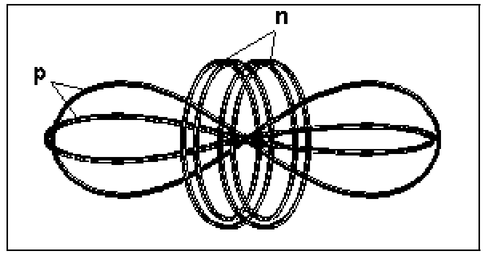


Fig. 2.29.E. Radial section of positive FOHS with twisted internal $RL(T)^+$ structure generating E-field in CL space. The radial section of the FOHS envelope core and the

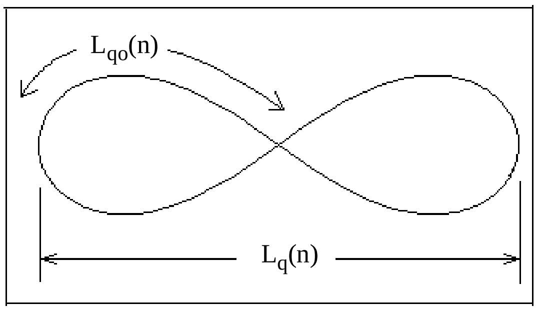
central core is formed of 7 prisms. r_p - is a radius of the FOHS envelope.



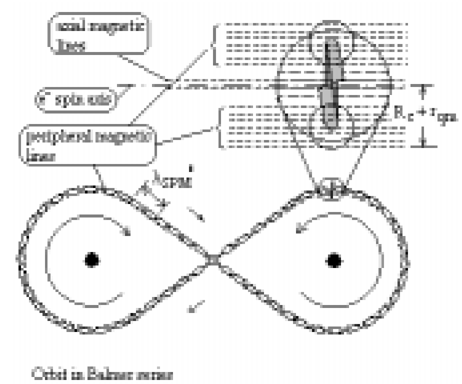
Deuteron with Balmer series orbital



He nucleus



Simple quantum orbit (n - is the subharmonic number)



Idealized shape of stable (quantum) orbit defined by the short magnetic line conditions. The peripheral and axial magnetic lines are generated by the electron spin rotation in its confined motion in CL space (see &7.7 in Chapter 7)

The equation of the quantum orbit trace length, L_{qo} is derived in &3.12.3 (Chapter 3).

$$L_{qo}(n) = \frac{2\pi a_o}{n} = \frac{\lambda_c}{\alpha n} \qquad (3.43.i)$$

where: n is the subharmonic number of the quantum orbit; λ_c - is the Compton wavelength; α - is the fine structure constant; $2\pi a_o$ - is the length of the boundary orbit (a_o - is the Bohr model radius)

The shape of the orbit is defined by the proximity E-field of the proton. The most abundant quantum orbit has a shape of Hippoped curve with parameter $a = \sqrt{3}$. Orbits of such shapes are also used as electronic bonds connecting atoms in molecules (see Chapter 9).

The trace length L_{qo} and the long axis length L_q of the possible simple quantum orbits (formed by single quantum loops) are given in Table 1.

The estimated distance between the CL nodes in abcd axis is: $d_{abcd} \approx 0.549 \times 10^{-20}$ (m).

Table 1:

n	L_{qo} [A]	L_q [A]	e^- energy [eV]
1	3.3249	1.3626	13.6
2	1.6625	0.6813	3.4
3	1.1083	0.4542	1.51
4	0.8312	0.3406	0.85
5	0.665	0.2725	0.544
6	0.5541	0.2271	0.3779

The calculated geometrical parameters of the stable atomic particles: proton, neutron, electron and positron are given in **Table 2**. The last reference column points to the BSM chapters mostly related to the calculations and cross validations of the parameters.

Table 2:

Parameter	Value	Description	Calculations and cross validations in:
L_{PC}	1.6277 (A)	proton (neutron) core length	Chapters 5 and 6
L_P	0.667 (A)	proton length	Chapters 6, 7, 8, 9
W_P	0.19253 (A)	proton (neutron) width	Chapters 6, 7 ,8 ,9
r_e	8.8428E-15 (m)	small radius of electron	Chapters 3, 4, 6
s_e	1.7706E-14 (m)	electron(positron) step	Chapter 3
r_p	5.8952E-15 (m)	small radius of positron	Chapters 3, 4, 6
$2(R_c + r_p)$	7.8411E-13 (m)	thickness of proton (neutron)	Chapters 6, 7, 8, 9

Notes:
(1) $R_c = 3.86159 \times 10^{-13}$ (m) is the Compton radius of electron.
(2) $1A = 10 \times 10^{-10}$ (m) is the Amstrong unit for length